

John Colangelo
United States Aluminate Company, Inc.
9411 Philadelphia Road, Suite H
Baltimore, Maryland 21237

Dear Mr. John Colangelo:

Re: Registered Construction and Operation Status,
091-12949-00005

The application from United States Aluminate Company, Inc. received on November 28, 2000, has been reviewed. Based on the data submitted and the provisions in 326 IAC 2-5.1, it has been determined that the following aluminate/alum manufacturing facility, to be located at 1750 East U.S. 12, Michigan City, Indiana, 46360 is classified as registered:

- (a) One (1) 25.2 MMBtu natural gas fired boiler.
- (b) Two (2) sodium aluminate process tanks each with a 40,000 gallon maximum capacity emitting to the atmosphere through tanks SAO1 and SAO2.
- (c) Two (2) aluminate sulfate process tanks each with a 70,000 gallon maximum capacity emitting to the atmosphere through stacks alum01 and alum02.

The following conditions shall be applicable:

326 IAC 5-1 (Visible Emissions Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following, unless otherwise stated in this permit:

- (a) Opacity shall not exceed an average of forty percent (40%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor in a six (6) hour period.

326 IAC 6-2-4 (Emission Limitations for Facilities specified in 326 IAC 6-2-1(d))

Particulate emissions from indirect heating facilities shall not exceed 0.47 pounds per MMBtu.

326 IAC 6-3-2 (Process Operations)

The particulate matter (PM) from the aluminum sulfate and sodium aluminate processes shall be limited by the following:

Interpolation and extrapolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67}$$

where E = rate of emission in pounds per hour and
P = process weight rate in tons per hour

Interpolation and extrapolation of the data for the process weight rate in excess of sixty thousand (60,000) pounds per hour such as for the sodium aluminate process, shall be accomplished by use of the equation:

$$E = 55.0 P^{0.11} - 40 \quad \text{where } E = \text{rate of emission in pounds per hour and} \\ P = \text{process weight rate in tons per hour}$$

Allowable PM Emissions

Process	Process Rate	Allowable PM Emission (Pounds/hour)
Aluminum Sulfate Process	33,000 lbs/hr.	26.82
Sodium Aluminate Process	100,000 lbs/hr.	44.58

The natural gas fired boiler is subject to the New Source Performance Standards (NSPS) (326 IAC 12, 40 CFR 60.40c through 60.48c, Subpart Dc as the boiler is larger than 10 MMBtu/hr. This rule requires the sources maintain monthly records of the amount of fuel combusted for a period of two (2) years.

This registration is the first air approval issued to this source. The source may operate according to 326 IAC 2-5.5.

An authorized individual shall provide an annual notice to the Office of Air Quality that the source is in operation and in compliance with this registration pursuant to 326 IAC 2-5.1-2(f)(3). The annual notice shall be submitted to:

**Compliance Data Section
Office of Air Quality
1000 North Senate Avenue
P.O. Box 6015
Indianapolis, IN 46206-6015**

no later than March 1 of each year, with the annual notice being submitted in the format attached.

An application or notification shall be submitted in accordance with 326 IAC 2 to the Office of Air Quality (OAQ) if the source proposes to construct new emission units, modify existing emission units, or otherwise modify the source.

Sincerely,

Paul Dubenetzky, Chief
Permits Branch
Office of Air Quality

ERG/RB

cc: File - Laporte County
Laporte County Health Department
Air Compliance - Rick Massoels
Northwest Regional Office
Permit Tracking - Janet Mobley
Technical Support and Modeling - Michele Boner
Compliance Data Section - Karen Nowak

Registration Annual Notification

This form should be used to comply with the notification requirements under 326 IAC 2-5.1-2(f)(3).

Company Name:	United States Aluminate Company, Inc.
Address:	1750 East U.S. 12
City:	Michigan City, Indiana 46360
Authorized individual:	John Colangelo
Phone #:	(410) 918-2230
Registration #:	091-12949-00005

I hereby certify that United States Aluminate Company, Inc. is still in operation and is in compliance with the requirements of Registration 091-12949-00005.

Name (typed):
Title:
Signature:
Date:

Indiana Department of Environmental Management Office of Air Quality

Technical Support Document (TSD) for a Registration

Source Background and Description

Source Name: United States Aluminate Company, Inc.
Source Location: 1750 East U.S. 12, Michigan City, Indiana 46360
County: Laporte
SIC Code: 2899
Operation Permit No.: 091-12949
Permit Reviewer: ERG/RB

The Office of Air Quality (OAQ) has reviewed an application from United States Aluminate Company, Inc. relating to the construction and operation of alum/aluminate manufacturing facility.

Emission Units and Pollution Control Equipment

The source consists of the following permitted emission units and pollution control devices:

- (a) One (1) 25.2 MMBtu natural gas fired boiler.
- (b) Two (2) sodium aluminate process tanks each with a 40,000 gallon maximum capacity emitting to the atmosphere through tanks SAO1 and SAO2.
- (c) Two (2) aluminate sulfate process tanks each with a 70,000 gallon maximum capacity emitting to the atmosphere through stacks alum01 and alum02.

Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (°F)
SA01	Sodium aluminate process tank	28.5	3	126	162
SA02	Sodium aluminate process tank	28.5	3	126	162
Alum01	Alum process tank	41.75	3	3590	124
Alum02	Alum process tank	41.75	3	3590	124

Enforcement Issue

There are no enforcement actions pending.

Recommendation

The staff recommends to the Commissioner that the construction and operation be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on November 11, 2000, with additional information received on December 15, 2000.

Emission Calculations

The calculations submitted by the applicant have been verified and found to be accurate and correct. See Appendix A, pages 1 through 4, of this document for detailed emissions calculations

Potential To Emit

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as "the maximum capacity of a stationary source or emissions unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA, the department, or the appropriate local air pollution control agency."

Pollutant	Potential To Emit (tons/year)
PM	1.21
PM-10	1.84
SO ₂	0.07
VOC	0.60
CO	9.30
NO _x	11.04

- (a) The potential to emit (as defined in 326 IAC 2-7-1(29)) of all criteria pollutants are less than 100 tons per year. Therefore, the source is not subject to the provisions of 326 IAC 2-7.
- (b) The potential to emit (as defined in 326 IAC 2-7-1(29)) of any single HAP is less than ten (10) tons per year and the potential to emit (as defined in 326 IAC 2-7-1(29)) of a combination HAPs is less than twenty-five (25) tons per year. Therefore, the source is not subject to the provisions of 326 IAC 2-7.
- (c) The potential to emit (as defined in 326 IAC 2-7-1(29)) of NO_x and CO is less than twenty five (25) tons per year and greater than five (5) tons per year. Therefore, the source is subject to the provisions of 326 IAC 2-5.5.

Actual Emissions

No previous emission data has been received from the source.

Limited Potential to Emit

The table below summarizes the total potential to emit, reflecting all limits, of the significant emission units.

Allowable and Potential Emissions

Process	Process Rate	Allowable PM Emissions (lbs/hr)	Potential PM Emissions (lbs/hr)
Natural Gas-Fired Boiler	25.2 MMBtu/hr	0.47	0.048
Aluminum Sulfate Process	33,000 lbs/hr	26.82	0.00005
Sodium Aluminate Process	100,000 lbs/hr	44.58	0.23

The source is located in Laporte County.

Pollutant	Status (attainment, maintenance attainment, or unclassifiable; severe, moderate, or marginal nonattainment)
PM-10	Attainment
SO ₂	Maintenance
NO ₂	Attainment
Ozone	Unclassifiable/Attainment
CO	Attainment
Lead	Attainment

- (a) Volatile organic compounds (VOC) and oxides of nitrogen (NO_x) are precursors for the formation of ozone. Therefore, VOC emissions are considered when evaluating the rule applicability relating to the ozone standards. Laporte County has been designated as attainment unclassifiable for ozone. Therefore, VOC and NO_x emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.
- (b) Laporte County has been classified as attainment or maintenance for all other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

Source Status

New Source PSD Definition (emissions after controls, based on 8,760 hours of operation per year at rated capacity and/ or as otherwise limited):

Pollutant	Emissions (ton/yr)
PM	1.21
PM10	1.84
SO ₂	0.07
VOC	0.60
CO	9.30
NO _x	11.04
Single HAP	0.19
Combination HAPs	< 1

- (a) This new source is not a major stationary source because no attainment pollutant is emitted at a rate of 250 tons per year or greater and it is not in one of the 28 listed source categories. Therefore, pursuant to 326 IAC 2-2, and 40 CFR 52.21, the PSD requirements do not apply.

Part 70 Permit Determination

326 IAC 2-7 (Part 70 Permit Program)

This new source is not subject to the Part 70 Permit requirements because the potential to emit (PTE) of:

- (a) each criteria pollutant is less than 100 tons per year,
- (b) a single hazardous air pollutant (HAP) is less than 10 tons per year, and
- (c) any combination of HAPs is less than 25 tons/year.

This is the first air approval issued to this source.

Federal Rule Applicability

- (a) The natural gas fired boiler is subject to the New Source Performance Standards (NSPS) 40 CFR 60.40c through 60.48c, Subpart Dc as the boiler is larger than 10 MMBtu/hr. This rule requires the sources maintain monthly records of the amount of fuel combusted for a period of two (2) years.
- (b) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs)(326 IAC 14 and 40 CFR Part 63) applicable to this source.

State Rule Applicability - Entire Source

326 IAC 5-1 (Visible Emissions Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following, unless otherwise stated in this permit:

- (a) Opacity shall not exceed an average of forty percent (40%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

326 IAC 6-2-4 (Emission Limitations for Facilities specified in 326 IAC 6-2-1(d))

- (a) Particulate emissions from indirect heating facilities constructed after September 21, 1983 shall be limited by the following equation:

$$P_t = \frac{1.09}{Q^{0.26}}$$

Where: P_t = Pounds of particulate matter emitted per million Btu (lb/MMBtu) heat input.
 Q = Total source maximum operating capacity rating in million Btu per hour (MMBTU/hr) heat input. The maximum operating capacity rating is defined as maximum capacity at which the facility is operated or the nameplate capacity, whichever is specified in the facility's permit application, except when some lower capacity is conducted in the facility's operation permit; in which case, the capacity specified in the operation permit shall be used.

For the equipment used at United States Aluminate Company, Inc., the P_t would be calculated to be 0.47 pound per hour. As the potential to emit (0.048 pounds per hour) is less than the allowable emission rate, this source complies with this requirement.

326 IAC 6-3-2 (Process Operations)

The particulate matter (PM) from the United States Aluminate Company, Inc. shall be limited by the following:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour such as for the aluminate sulfate process, shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67} \quad \text{where } E = \text{rate of emission in pounds per hour and} \\ P = \text{process weight rate in tons per hour}$$

For United States Aluminate Company, Inc., PM emissions should be less than 26.82 pounds per hour. As the potential to emit (0.22 pounds per hour) is less than the allowable PM emission rate, the potential to emit rate will be used for regulatory determination.

Interpolation of the data for the process weight rate in excess of sixty thousand (60,000) pounds per hour, such as for the sodium aluminate process, shall be accomplished by use of the equation:

$$E = 55.0 P^{0.11} - 40 \quad \text{where } E = \text{rate of emission in pounds per hour and} \\ P = \text{process weight rate in tons per hour}$$

For United States Aluminate Company, Inc., PM emissions should be less than 44.58 pounds per hour. As the potential to emit (0.00005 pounds per hour) is less than the allowable emission rate, the potential to emit will be used for regulator determination.

Conclusion

The construction and operation of this alum/aluminate manufacturing facility shall be subject to the conditions of the attached proposed New Source Construction Operating Registration 091-12949-00005.

Appendix A: Emissions Calculations

Natural Gas Combustion Only

MM BTU/HR <100

Small Industrial Boiler

Company Name: U.S. Aluminate

Address City IN Zip: 1750 East U.S. 12, Michigan City, Indiana 46360

CP: 091-12949

Plt ID: 091-00005

Reviewer: ERG/RB

Date: December 19, 2000

Heat Input Capacity
MMBtu/hr

Potential Throughput
MMCF/yr

25.2

220.8

Emission Factor in lb/MMCF	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
	1.9	7.6	0.6	100.0	5.5	84.0
Potential Emission in tons/yr	0.2	0.8	0.1	**see below	0.6	9.3

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.

**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).

See page 2 for HAPs emissions calculations.

**Appendix A: Emissions Calculations
Natural Gas Combustion Only**

Page 2 of 4 TSD App A

MM BTU/HR <100

Small Industrial Boiler

HAPs Emissions

Company Name: U.S. Aluminate

Address City IN Zip: 1750 East U.S. 12, Michigan City, Indiana 46360

CP: 091-12949

Plt ID: 091-00005

Reviewer: ERG/RB

Date: December 19, 2000

HAPs - Organics

Emission Factor in lb/MMcf	Benzene 2.1E-03	Dichlorobenzene 1.2E-03	Formaldehyde 7.5E-02	Hexane 1.8E+00	Toluene 3.4E-03
Potential Emission in tons/yr	2.318E-04	1.325E-04	8.278E-03	1.987E-01	3.753E-04

HAPs - Metals

Emission Factor in lb/MMcf	Lead 5.0E-04	Cadmium 1.1E-03	Chromium 1.4E-03	Manganese 3.8E-04	Nickel 2.1E-03
Potential Emission in tons/yr	5.519E-05	1.214E-04	1.545E-04	4.194E-05	2.318E-04

Methodology is the same as page 1.

The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Appendix A: Emissions Calculations

Page 3 of 4 TSD App A

Process Tank Emissions

Company Name: U.S. Aluminate
Address City IN Zip: 1750 East U.S. 12, Michigan City, Indiana 46360
CP: 091-12949
Plt ID: 091-00005
Reviewer: ERG/RB
Date: December 19, 2000

Process Tank PM Emissions (tons per year)*

Sodium Aluminate Processing Tanks

SA01	0.000
SA02	0.000

Alum Processing Tanks

Alum01	0.5
Alum02	0.5

Total	1
-------	---

* From calculations provided in the application.

Appendix A: Emissions Calculations

Page 4 of 4 TSD App A

Total Emissions

Company Name: U.S. Aluminate
Address City IN Zip: 1750 East U.S. 12, Michigan City, Indiana 46360
CP: 091-12949
Plt ID: 091-00005
Reviewer: ERG/RB
Date: December 19, 2000

Total Emissions (tons) per year

	PM*	PM10*	SO2	NOx	VOC	CO
Combustion sources	0.21	0.84	0.07	11.04	0.60	9.30
Process tanks	1.00	1.00				
Total	1.21	1.84	0.07	11.04	0.60	9.30